Perceived Impacts of Community Gardens: Analysis by Structure and Funding Sources

Honors Thesis

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Abstract

Community gardening programs are present in many communities throughout Ohio. Little research has looked into the relationship of structural factors of a garden and the perceived impacts garden leaders see from their work. This study examines how various structural factors of a garden a impacts perceived by garden leadership. Garden affect leaders from throughout Ohio completed an online survey regarding their garden. These gardens vary widely in leadership structure as well as where they derive their funding. Along with these, thee gardens tend to perceive high levels of impacts within their communities. *Mann-Whitney U* tests indicate significant differences on perceived benefits based on leadership structure. These findings demonstrate a need for further research into these trends. Along with these, this study demonstrates the importance of the structure of community gardens, the source of funding, and the implications these might have on the perception of their work.

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Chapter I

Introduction

As the population of our planet continues to grow, how we produce food will become paramount in the coming decades. Numerous systems are in place to meet this demand; however, local food systems have become a topic of greater interest in many communities. With the outward expansion of many cities and degradation of traditional farm lands, some have pointed to cities as the future of food production (Grewal & Grewal, 2012). Much of the discourse on local food systems has been within the context of "urban agriculture" and focused mainly on the most basic unit of these local food systems: "community gardens". Community gardens, as defined by the American Community Garden Association, are "any piece of land gardened by a group of people" (ACGA, 2016). Although basic in nature, these organizations often go beyond the cultivation of land. As Mark Winne, author of *Closing the Food Gap: Resetting the Table in the Land of the Plenty*, once said, "The important word in community garden is not garden." (Winne, p. 62). This implies purpose beyond the production of food in these systems. The advent of these community gardens is not a recent phenomenon.

Shared cultivation of land dates back thousands of years to the advent of subsistence agriculture (Lovell, Husk, Bethel, & Garside, 2014). But, the term "community garden" dates to a more recent time in human history. Going back into the 1800's, government-sponsored land inside the limits of cities has been given to individuals to increase the food available to the urban public who are devoid of their own land (Okvat and Zautra, 2011). Throughout the World Wars, individual citizens of the United States were urged by the government to plant gardens to produce food for their community to help save food produced by the agricultural industry for the troops abroad (Lovell et al., 2014). These "Victory Gardens" began to symbolize more than just

food production. They became an act of pride to better ones' country and community (Lovell et al., 2014). Throughout this history, the importance of production for the self and for others extends beyond the bounds of the community and relates to a larger social system. The reliable production and access to food cannot be understated.

Along with the food produced comes several other effects within a community. Individuals who participate with community gardens tend to experience lower stress levels, get more physical activity, have stronger relationships with their community members, and are more likely to eat fruits and vegetables than others within their community (Alaimo, Packnett, Miles & Kruger., 2008; Okvat & Zautra, 2011; Wakefield, Yeudall, Taron, Reynolds, & Skinner, 2007). Community-wide, these gardens help create a more cooperative and united community through allowing a common space of interaction and healthy problem-solving (Baker, 2004; Okvat & Zautra, 2011; Wakefield et. al, 2007). However, these benefits derived from having a community garden do not come until after the garden is started and established. Understanding why and how community gardens succeed and fail can give insight into the direction and betterment of the local food movement. Often, structural and societal influences inside and outside of the community may play a large role (Drake & Lawson, 2015; Gough & Accordino, 2013; Hu, Acosta, McDaniel, & Gittelsohn, 2013; Jamison, 1985).

Community gardens are just that: based in a community. Because of this, a community garden can face a litany of issues other producers do not. The largest difference between community gardens and other food producers is that community gardens often lack in funding and leadership (Drake & Lawson, 2015). As community started and driven organizations, community members must serve to lead the garden and find ways to pay for its expenses. This can often lead to a lack of both factors. Along with this, how the garden is structured and where

it is located vary widely and can dictate the success of the garden. For this reason, understanding why individuals start and participate in community gardens and the effect funding plays in the process can be crucial to understanding their success.

For most practitioners, they start a garden because they see some issue within a community. Whether it be lack of community cohesion or lack of fresh food, the issues that these communities face come in a variety of forms. However, when discussing alternative food movements, food security is often the most frequently cited issue to address. Food insecurity, as defined by the World Health Organization, is "a lack of adequate and consistent access to appropriate and healthy food that inhibits an active and healthy lifestyle" (World Health Organization *Food Security,* 2015). Not only does food insecurity apply to those lacking food in general, it also applies to individuals lacking access to healthy foods (such as fresh produce). This issue is one that affects both the "developing" and "developed" world. Food insecurity is often linked to larger societal issues, rather than being purely economic (Kato, 2014). Often, these factors can be drawn to a lack of options or choice.

This idea of food insecurity often accompanies the term "food desert". A food desert is an area which lacks "easy access" to contemporary methods of obtaining food (grocery stores, markets, etc.) (Kato, 2014). These areas are characterized by an abundance of convenience stores and a general lack of affordable and reliable fresh produce (Kato, 2014). To combat this lack of access, two ideas are essential to most community-based food systems: food citizenship and food sovereignty (Baker, 2004; Kato 2014). These ideas call for those in the community to have an active and democratic role in the food which sustains their community (Baker, 2004). The common thread amongst all these issues and solutions is the idea of active participation and community-oriented activities directly linked to the food system. Community involvement helps

increase the food citizenship within the communities that have these community-based food systems.

Community gardens, to this effect, are often the first step for communities to create more self-reliance and control over their food security while improving the lives of those living within the community. As a communal effort, these gardens give communities the power to change their food system and create an avenue to develop important social capital between community members (Emery & Flora, 2006; Okvat & Zautra, 2011; Wakefield et al., 2007). These developments will serve communities well in adapting to future changes within food production and create more resiliency Understanding how these structural factors affect the overall sustainability and work of community gardens can affect the proliferation of these groups.

Purpose of the Study

This study is designed to examine how structural factors within a community garden relate to the how garden leadership perceives the work they do. The structural factors in question are the type of leadership team and the sources of funding for the garden. The outcomes include various perceived impacts within the community. These factors will be explored through survey data collected from community garden leadership across Ohio.

Significance of Study

Community gardens, as a community-based food system, are very different from other food movements. As stated before, they are largely based on community involvement and engagement to recruit and retain volunteers and leadership alike. These factors can be largely based on the structural factors of the garden, such as: location within the community, source of funding, and type of involvement. It is important to identify the effect these structural elements might have on community gardening programs. Much of the literature focuses on the benefits

community gardens have within their community. These studies are important for legitimizing the existence of these alternative food movements and further explaining their impact. Along with this, little research has gone into how the organizations are structured plays into their perceived effect.

Research identifying how these structural elements affect longevity of the garden program and the perceived efficacy of community garden leadership can better explain the medium in which these organizations work within a community. By identifying how garden management and funding affects leadership view their work, this could increase the scholarly discussion on the importance analyzing structural elements surrounding how community gardens operate and the effects these factors might have on the health of the community garden movement. Understanding the practitioners' perception of their work and the issues facing their programs can lead to a better understanding of how individuals can be more successful in creating community gardening programs. This research can bolster the work done by community gardens and solidify the feasibility of alternative food systems in communities into the future, allowing more responsiveness and control over their food environment.

Objectives of Research

This study was created to look at structural elements of community gardens, perceived outcomes of programming, and the overall sustainability of the programs. Within this scope, questions of interest pertain to elements from the study, including:

- What is the structure and funding of community gardens in Ohio?
- What are the perceived impacts of community gardens by garden leaders?
- Is there a difference in perceived impacts based on leadership structure and funding?

Chapter II

Review of the Literature

Community gardening and other community-based food systems have gained popularity amongst many as a solution to the issues presented by food insecurity (Carney, 2011). With this new interest in community-based food systems, numerous studies have increased the scholarly dialogue about these programs (Lovell et. al, 2014). The studies were found using key search terms in databases of peer-reviewed and published literature. My focus was on social science databases and those dealing with agricultural research, namely EBSCO databases such as Social Science Abstracts, SocINDEX and Agricola.

Much of the research in this field focuses in the field of social sciences and the use of qualitative studies occurs more frequently than those of a more quantitative approach. Many of these studies used observational studies, case studies, questionnaires, and interviews as the main modes of insight into these community-based food systems (Baker, 2004; Carney, Hamada, Rdesinski, Sprager, Nichols, Liu, & Shannon, 2011; Flachs, 2013; Hazzard, Moreno, Beall, & Zidenberg-Cherr, 2005; Hu et al., 2013; Liddicoat, Simon, Krasny, & Tidball, 2007; Macais, 2008; Peterson, Leatherman, Baker, Henness, Mains, Newman, & Miske, 2014; Wakefield et al., 2007). Fewer studies focused on measuring outcomes in a more quantitative and traditional scientific approach (Alaimo et al., 2008; Kato et al., 2014). Yet, numerous works focused on reviewing the literature by theme and relevance, adding to the overall dialogue in the research community surrounding this topic (Drake & Lawson, 2015; Jamison, 1985; Lovell et al., 2014; McCormack, Laska, Larson, & Story, 2010; Okvat & Zautra, 2011; Robinson-O'Brien, Story, & Heim, 2009). Each of these studies brings valid results into the scholarly body of knowledge.

This review provides a) an understanding of the theoretical underpinnings to my work, b) a highlight of the impacts that can be achieved through well-designed community-based programming, c) a list of structural components within urban food systems, d) an overview of literature covering funding sources and longevity of community garden programs, and e) a summary of the many strengths and deficiencies in the scholarly body of knowledge to show areas of further research. Each of these goals will have a separate subheading and will discuss all relevant literature found through my review.

Theoretical Frameworks

The basis of this study is aiming at understanding structural factors that affect community programming. This study is based on two theoretical frameworks that will be highlighted in this section: The Community Capitals Framework (Emery & Flora, 2016) and Symbolic Interactionism (Carter and Fuller, 2016).

The hope is that this understanding can be used by policy makers and community garden practitioners to assist the proliferation and continuation of community garden programs within communities throughout Ohio and the United States. This is all based on the assumption that community gardens have impact within the community. Under this conceptualization of community gardens, they could be viewed as a "Community Capital" (Emery & Flora, 2016). These "capitals" are composed of seven separate asset areas that the authors identified as crucial and universal elements of a community to be identified, measured, and increased (Emery & Flora, 2016). The capitals identified are as follows: human, social, political, financial, physical, natural/ environmental, and cultural capital (Emery & Flora, 2016). Through the incorporation of these assets, they can contribute to a "Spiraling up" effect that can contribute to other positive outcomes in the community, such as increased economic success, decreased crime, and increased

consumption of healthy foods (Emery and Flora, 2016). This idea is important to understanding the rationale behind the impacts community garden leaders perceive to their work. These impacts often extend beyond the functions of the garden and include broader outcomes in the community. Also, given this conceptualization, gardens can be viewed as policy instruments by local governments to reinforce or start positive trends within a community.

Within this study, there is a large emphasis placed on this idea of perception versus reality. To some, there may be little value gained from understanding what is perceived by garden leaders rather than focusing on what is observed. However, per theories such as "Symbolic Interactionism," this idea of meaning behind social interaction dictates a great deal about how information is communicated and understood (Carter and Fuller, 2016). Symbolic interactionism dictates that interactions between individuals are based on some shared understanding behind the meaning of something (Carter and Fuller, 2016). Through this understanding, garden leaders perhaps share some common meaning behind the work they do. Along with this, we can delve into how patterns of thought and action are based upon the perception of self-efficacy (Bandura, 1989). If one perceives to have little to no impact on something, self-efficacy will be low and in turn impact the beliefs and actions taken to create an impact (Bandura, 1989).

In short, the theoretical underpinnings underlying this study involve a conceptualization of community gardens that community gardens are an asset within a community and that they are started and maintained by individuals that perceive some larger meaning in the work that is being done, implying that both garden leadership and the community as a whole play a factor in the existence of these programs. For individuals to start a garden, they must perceive some efficacy to make some impact within community (Bandura, 1989). If there are factors that influence the

efficacy of community gardening program, this would impact individual leader's willingness to continue gardening programming, affecting an asset that can contribute to a spiraling of capitals within the community (Emery and Flora, 2016).

Impacts

With some fundamental studies towards the end of the 20th century and numerous studies published in the 21st century, this area of research has helped to guide and develop the academic understanding of these programs as they become more and more popular. The bulk of this research lends its founding theories and principles to ideas of nutritional and psychological research.

Numerous studies focused solely on the physical health and well-being benefits derived from these programs. One such study was conducted by a team from Michigan State University (Alaimo et al., 2008). Through a quantitative survey of 766 Flint, Michigan residents, these researchers collected demographic data, as well as data on fresh fruit and vegetable consumption, amongst members of the community (Alaimo et al., 2008). Some of these members participated in various community-based food systems around the city of Flint. Alaimo found that, on average, individuals who personally (or had a member of their household) participate in community garden activities consumed more fresh fruits and vegetable more frequently (Alaimo et al., 2008). Other researchers who conducted similar research had similar findings (Carney et al., 2011; McCormack et al., 2010; Robinson O'Brien et al., 2009). Alongside these nutritional benefits, many researchers pointed to an increase in physical activity as another positive outcome of involvement in community gardening (Carney et al., 2011; Wakefield et al., 2007). Lastly, one study attempted to encapsulate the benefits local food production through these community-

based food systems had on the global community by helping decrease carbon emissions and pollution (Okvat & Zautra, 2011).

Outside of these tangible, nutritional, and physical well-being outcomes, many other authors focused on the psycho-social benefits of these community garden programs. Okvat and her colleagues collected numerous studies in a meta-analysis that demonstrates various factors that allows gardens to give individuals the variety of psycho-social benefits (Okvat & Zautra, 2011). This review combined numerous studies on the effects of green space and found that contact with greenery improves attention and increases mood (Okvat & Zautra, 2011). Wakefield also found an overall increase in mental health when individuals participated in community gardening activities. (Wakefield et al., 2007). Lastly, a study has been shown that children's involvement at nearly all levels of the community-based food system increases buy-in and helps build social capital (Peterson et al., 2014).

These benefits, however, are more focused on the individual and other studies found that those who participated in community gardening activities experienced other social benefits. The works by Okvat and Wakefield both found increases in social capital through: social interactions with members of the community, acquisition of new skills, gaining the ability to gather as a group to address issues, and increased ability to work in socially diverse groups (Okvat & Zautra, 2011; Wakefield et al., 2007). This idea of social capital is one that was mentioned in many other studies as well. Studies of youth programming indicates community gardens help foster leadership skills, as well as give children a chance to master a skill and practice with independence (Peterson et al., 2014). By providing a common goal and location, community gardens provide an ideal environment for community members to gain social skills and connections that give them power inside and outside of the community.

While much of the literature focuses on tangible elements of community gardens, there are few studies that examine the perception of community gardens. The studies that were found often focus on actors outside the community gardening organization itself. A team from Australia did a qualitative study of the perceived health benefits gained by individuals participating in community gardening programs (Kingsley, Townsend, & Henderson-Wilson, 2009). By interviewing community members involved with the community garden using semi-structured questions, they detailed the benefits these individuals feel they have received through their involvement with the gardens (Kingsley et al., 2009). These benefits ranged from spiritual connection, improved nutrition, and increased physical activity, echoing some of the findings in the "Benefits" section above (Kingsley et al., 2009). Expanding outward from the garden itself, other researchers looked at how the community perceived leisure time activities (specifically community gardens) served as a space to bridge racial divides and ease racial tension (Shinew, Glover, & Parry, 2004). The study concluded that in some scenarios, allowing for positive contact in racially-mixed settings through community gardens could help bridge racial divides, and these effects are seen differently depending on the race and perception of racial composition (Shinew et al., 2004). Lastly, Gough and Accordino (2013) studied how extra-community organizations (such as regional or municipal governments or businesses) perceived the benefits of partnering with community garden programs. They found that most of the benefits received were perceived to benefit the community and partnering entity in a mutual fashion, such as increased economic development or public service provision (Gough & Accordino, 2013).

Structure

Few studies have been identified that focus on the leadership structure of gardens and how this might affect the mission of the gardens. However, there is a sizable body of literature which aims to understand various other structural components regarding communities and the gardens themselves to draw on for this study.

Numerous studies focused on the best practices for community-based programs and how to best orient them within the societal and political structures inside the community. Though much overlap exists between the societal structures in the community and the larger, political structures that encompass the area, much of the research focuses on only one of these factors. For the purpose of this review, societal structures will refer to all cultural or ideological constructs which govern the human social interactions involved in the involvement of these programs in the community. Political structures will refer to the economic and governmental structures that govern the interventions set forth by these community-based food systems.

As alluded to before, the importance of a community-based food system goes beyond the fruits and vegetables it produces and relates to the community beyond the providing of food. A case study of three community gardens in Toronto, conducted by Lauren Baker out of York University of Toronto, uncovered many levels of the "social landscape" surrounding these community garden programs (Baker, 2004). Baker asserted that community gardening, as a social movement, served as the intersect between the unique cultural ideas and population of a community and the charitable organizations that seek to affect change in these communities and how a mixing of ideologies can be a barrier to integration of the program into the community (Baker, 2004). Numerous scholars have found that for programming in these community-based food programs to be effective, a fundamental understanding and incorporation of the community

in every level of the program must be achieved (Hu et al., 2013; Flachs, 2013; Liddicoat et al., 2007). Each of these researchers, however, focuses on a specific area of social understanding. After conducting interviews and focus groups with Cleveland community gardening groups, Flach's (2013) work focuses on the reasons behind volunteering with these organizations and the benefits volunteers feel they received from their involvement. Similar work was also conducted by Wakefield (et al., 2007)., and both studies found similar results: community members got involved to save money, gain access to fresh foods, and connect with the broader senses of community and the benefits of natural spaces (Flachs, 2013). Along with knowing why people access community-based food systems, it is just as important to know who is accessing them. Examining the community to understand the background and demographics of its members can give a better understanding of what the community needs and how to address these needs. This could be economic in-accessibility due to low-income households or a misbranding of activities due to historical and cultural differences (Hu et al., 2013; Macais, 2008).

"Political gardening" was the idea put forth by a team centered out of post Hurricane Katrina New Orleans that asserts that community gardens and other community-based food systems are political by their very nature (Kato, Passidomo, & Harvey, 2014). Whether it is in the program's mission statement or not, activities of these community-based food systems are attempting to address some broader or more specific political issue, whether it be food sovereignty issues linked to race or socio-economic inequalities or food access issues linked to lack of grocers (Kato et al., 2014). However, some research focuses on the more literal connection of gardening programs and the political structure, such as policy restrictions, zoning issues and public funding. To properly orient the community program, the mission statement and philosophy must be aligned so that clashes of philosophy and vernacular do not get in the way of

the execution of community programming (Jamison, 1985). Jamison asserts that government and community garden programs can become misaligned when anti-collective stereotypes are perpetuated and acted upon by members of the community gardening community (Jamison, 1985). That is not to say some governmental agencies don't act against some community-based food systems. One of the major obstacles posed by local government is insecure land tenure due to zoning policies (Wakefield et al., 2007). Scholars have even asserted that the use of leased land from municipal governments creates a negative perception of the transience of these gardens (Drake & Lawson, 2014). This can play out in land policy and the dispersal of public-funding for these endeavors (Drake & Lawson, 2015). Many of these issues discussed are shared by community gardening practitioners. However, lack of participation concerns and community involvement are some of the largest concerns voiced by these practitioners (Drake & Lawson, 2015). Some governmental programs have helped community members access the resources provided by community-based food systems. Some programs have adopted programming to accept governmental supplemental food programs, such as WIC and Food Stamp programs, to make their goods more affordable to lower income individuals (McCormack et al., 2010). In fact, these kinds of adoptions have been shown to be a deciding factor in these individual's participation in the program (Macais, 2008; McCormack et al., 2010).

Youth-based garden programming has become of interest in the past decade. To begin, much of the literature surrounding youth-based programming targeting healthier eating and life habits was compiled in a review of relevant literature (Robinson-O'Brien et al., 2009). This team focused on three different kind of programs: school-based gardening classes, after-school programming and community-based youth programs not affiliated with a school (Robinson-O'Brien et al., 2009). Through their review, they found that in-school, class programs were most

effective at raising fresh fruit and vegetable intake amongst the students (Robinson-O'Brien et al., 2009). Though after-school programs and community-based programming had some of these effects, the relationship was not as strong as those seen within the classroom (Robinson-O'Brien et al., 2009). Another team, sought to tease out the best practices for school-based programming seeking to increase fresh fruit and vegetable intake amongst the students (Hazzard et al., 2005). They found that the programs which served the students best were those that had full or part-time volunteer (or paid) volunteer coordinators, coordination between staff, school administration, family and volunteers, adequate funding, and had a committee dedicated to the garden project (Hazzard et al., 2005).

Funding and Perceived Longevity

Little information has been identified examining longevity of garden programs. However, Drake and Lawson (2015) identified insecurity of funding as a major obstacle to community gardening programs. A survey of community gardens varying in size that were both domestic and international showed that funding was of concern to community gardeners (Drake & Lawson, 2015). In their article regarding take-away points to successful program design, Twiss (2003) identified the acquiring of funding as a major concern for the long-term planning and success of a community garden, along with policy making and volunteer outreach. Lastly, Opitz et al. (2016) studied techniques and issues that are on the forefront of urban agriculture. Specifically, they were looking at innovations that were being made in response to changes with the urban agriculture movement (Opitz et al., 2016). In terms of funding, they noted that crowd-funding (such as with *Kick-starter*) for specific purchases and online-fundraising platforms were areas of innovation for urban agriculture (Opitz et al., 2016).

Strengths and Deficits of Literature

The body of literature, although focused on bettering communities and individuals, has been built by scholars of diverse backgrounds and disciplines. The base of knowledge on community-based food systems incorporates ideas from many different disciplines, offering a variety of perspectives to view and resolve issues in the communities. Like any other base of literature, there are numerous gaps in knowledge within this body of knowledge. Studies have pointed to a lack of research into community barriers of access and involvement into a community-based food system (Okvat & Zautra, 2011; McCormack et al., 2010). Along with this, there are few studies that consider the motivations and perceptions of community garden leadership. Namely, these variables would include perceived impact of work and the anticipated longevity of programming. Additionally, these variables have not been linked to structural factors that surround the work of community gardening programs.

Summary

The history of application and research of community-based food systems is rich and has become an area of growth in the past decade (Lovell et al., 2014). With numerous scholars documenting what these programs can do for a community and how these programs can do this well, there exists a wealth of knowledge for practitioners and scholars alike. But, given the strengths and deficits in this knowledge base, the value added from considering the effect of structural factors and perception of garden leadership would be beneficial to policymakers and practitioners alike. Given the research, I would hypothesis that leadership structure and source of funding would have some impact on the perception of the work done by community gardens, and would likely increase the breadth of impacts perceived to be done within the community.

Chapter III

Methodology

This study was designed to look at community gardens throughout the State of Ohio. The data used within this study was a part of a larger study and was collected through an online survey sent to community garden leadership throughout Ohio. Along with data on youth involvement was information on the structure of the garden and the leadership within the garden.

This study was designed to answer the following research questions:

1. What is the structure and funding of community gardens in Ohio?
2. What are the perceived impacts of community gardens by garden leaders?
3. Is there a difference in perceived impacts based on leadership structure and funding?

Study Population

The primary population of this study is community gardening program leaders located within the State of Ohio. To identify the gardens, a message was sent to Ohio State University Extension and other food-related listservs. Along with this, internet searches identified community garden programs throughout Ohio. Several gardens were identified through school garden grants provided by the "Whole Kids Foundation." Lastly, organizations which oversee and work with community gardens in Ohio (such as the American Community Garden Association) were contacted to send information about the survey and the link to complete it to their members.

Instrument Design

The survey that was used for this study was sent to community garden leaders and asked questions about descriptive information about the garden, such as: garden location, sources of

funding, youth involvement, changes in youth's perception of gardening, and impacts of the garden as perceived by garden leadership. The questions came in the format of: multiple choice, Likert scales (for perceived impacts), and write-in responses. Variables used in this study will be described below.

Data Collection

Potential gardens that were identified by researchers operated within Ohio. Any gardens outside the state were asked not to participate within the study. A total of 213 individual surveys, as well as 34 requests to send an announcement about the survey through a listserv, were sent in early December of 2012 and January 2013. Two reminder emails following these emails in late January. By the time the survey was closed, there were 71 responses sent in to the researchers. To incentivizes participation, four respondents would be chosen at random to receive a $50 gift certificate to a gardening supply center of their choice.

Variables

Garden Information

In order to identify what kind of community the program was situated in, garden leaders were asked if their program was located in a: "Large urban area," "Mid-sized city," "Suburban area," "Small town," "Rural area/countryside," or self-identify as "Other." Due to small number of the responses, these five categories were combine to create three categories: "Urban", "Rural", and "Suburban" after the data was collected. To locate where the community garden was within the community, the survey asked to identify the land type the garden was located on. For instance, some of the responses include: "Public School," "Vacant Lot," or "Hospital." Lastly, community garden leaders were asked the likelihood that their program would continue "into the

next five years". The answers ranged on a Likert scale of 1 being "Very Unlikely" and 5 being "Very Likely".

Leadership Structure

Garden leaders were asked to choose the response which best described the leadership structure of their program. The responses available include: "A single leader makes the major decisions," "A group of individuals make the major decisions," "A board of directors makes the major decisions," and "Everyone contributes to the planning/organizing of the garden."

Funding Source

For this study, we were interested in seeing the how the availability of public/ grant funding might affect the work of community gardens. Garden leaders could choose from a variety of different funding sources, including: "Business," "Local Systems," "OSU Extension," and "Grants." These grants could include anything from funds given by local businesses and non-profits, to local, state, or federal grant funds.

Perceived Impacts

This question asked community garden leaders to indicate the impacts they felt their gardens had in 14 key areas designated by the researchers. Leaders could pick on a scale from 1-5 the level of impact their program had, with one being "No Impact" and five being "A Great Deal of Impact" with three serving as the middle with "Some Impact." Some of these perceived impacts include: "Bringing together diverse groups of people," "Reducing crime," and "Increased interest in urban-agriculture."

Data Analysis

The data from the surveys were collected by *Qualtrics* and analyzed in SPSS (v.24.0). Frequencies and non-parametric tests were used to report on the findings of the survey.

Chapter IV

Garden Information

A total of 71 garden leaders from throughout Ohio completed the survey. Of the respondents, 72.6% of respondents were female and 81% were Caucasian in race. The majority (78.7%) held a Bachelor's degree with 43.9% holding some form of Advanced degree. Most of the gardens were located within an urban setting with fewer in suburban and rural settings. Within the community, most gardens were located on land owned by a community-based organization, such as schools or churches. The next most prominent land used for these gardens was vacant lots. The type of community and the gardens location within the community can be found in Table 1 and Table 2 below.

Table 1: Types of Community

Type of Community	N	Percentage
Urban	39	57.4%
Suburban	16	23.5%
Rural	13	19.1%
Total	68	100.0%

Table 2: Locations of Gardens within Community

Location Within Community	N	Percentage
Other	17	23.9%
Vacant Lot	15	21.2%
Religious Organization	14	19.7%
Public School	12	16.9%
Park	7	9.9%
Recreation Center	2	2.8%
Public Housing Complex	2	2.8%
Private School	1	1.4%
Child Care Center	1	1.4%
Total	71	100%

Of these 71 respondents, 58 gardens identified that they had some component that is aimed at youth involvement within the garden (see Table 3 below). These opportunities ranged from school programs to volunteer opportunities outside of class time. Along with this, children were involved in varying degrees from simply working with gardens to having some say in how the plots were managed.

Table 3: Youth Component

Presence of a Youth Component	N	Percentage
Yes	58	80.7%
No	13	19.3%
Total	71	100%

Garden leaders were asked to identify the likelihood their program will continue into the next five years. In the case of the survey, the future was capped at five years or more. Most garden leaders (70.5%) believed it was “Very Likely” their program would continue into the next five years. Additionally, 16.4% felt that it was “Somewhat Likely,” while only 6.6% were

uncertain. Only 4.9 % and 1.6% marked that it was “Somewhat Unlikely” and “Very Unlikely” respectively. The full data can be found in Table 4 below.

Table 4: Perceived Longevity of Programming

Perceived Longevity	**N**	**Percentage**
Very Likely	43	70.5%
Somewhat Likely	10	16.4%
Uncertain	4	6.6%
Somewhat Unlikely	3	4.9%
Very Unlikely	1	1.6%
Total	61	100%

Objective #1: What is the structure and funding of community gardens in Ohio?

To understand how the garden itself was structured, garden leaders were asked to best identify how the leadership team was structured. Most gardens were led by groups of individuals, rather than a single individual. Of the gardens, 21.6% were led by an individual, while 58.1% were led by a group of individuals within the garden organization. Communal leadership structures were less common with 11.9% of responses, and the least common leadership structure was a Board of Directors (8.4%). Table 5 indicates the number of respondents who identified their leadership structure in each of the categories.

Table 5: Leadership Structure

Type of Leadership Structure	**N**	**Percent of Responses**
Single Leader	14	21.6%
Group of Individuals	36	58.1%
Board of Directors	4	8.4%
Everyone	8	11.9%
Total	64	100%

For this study, we were interested in seeing the how the availability of public/ grant funding might affect the work of community gardens. While roughly 70% of respondents answered this question, these data still give a representation of where many community gardens get their capital Notably, many organizations stated they received multiple sources of funding and the majority of gardens receive funding from private entities, such as businesses and local citizens. Table 6 shows the source of the funding and the number and percentages of respondents that marked their organization receives funding from that type of organization.

Table 6: Funding Sources

Type of Funding	**N**	**Percent of Responses**
Business	39	73.6%
Non-profit	43	81.1%
Local Citizens	34	69.4%
Schools	11	23.9%
Governmental Organization	19	42.2%
OSU Extension	6	8.5%
Local, State, and Federal Grants	27	56.3%
Other	9	39.1%
Total[1]	188	

Objective #2: What are the perceived impacts of community gardens by garden leaders?

The items were grouped into two categories of impacts: Individual/Social and Neighborhood/Community. This was based on a factor analysis using Principal Components Analysis with Varimax Rotation. The items that comprised individual/social impacts were: "Bringing together diverse groups of people," "Increasing interaction among neighborhood residents," "Providing residents with a gathering place," "Increasing interest in gardening," "Increasing interest in the environment," "Increasing physical activity among neighborhood

[1] There was a total of 71 responses, but each garden could pick multiple responses.

residents," "Increasing time spent outside among neighborhood residents," and "Increasing access to healthy food." The items that comprised neighborhood/community impacts were: "Reducing crime," "Providing young people with positive things to do," "Neighborhood beautification," "Strengthening people's attachment to the neighborhood," "Strengthening people's satisfaction with the neighborhood," and "Increasing a sense of pride in the neighborhood." For more information, see Table 7.

Table 7: Factor Analysis of Perceived Impacts with Groupings

Perceived Impacts	**Individual**	**Community**
Bringing together diverse groups of people	**.644**	.358
Increasing interaction among neighborhood residents	**.571**	.518
Providing residents with a gathering place	**.707**	.400
Increasing interest in gardening	**.779**	.250
Increasing interest in the environment	**.687**	.319
Increasing physical activity among neighborhood residents	**.715**	.377
Increasing time spent outside among neighborhood residents	**.754**	.375
Increasing access to healthy food	**.725**	.016
Reducing crime	.257	**.760**
Providing young people with positive things to do	.371	**.473**
Neighborhood beautification	.049	**.831**
Strengthening people's attachment to the neighborhood	.530	**.753**
Strengthening people's satisfaction with the neighborhood	.497	**.718**
Increasing a sense of pride in the neighborhood	.341	**.811**

For perceived impacts, the data shows that garden leaders tended to perceive gardens having a relatively high level of impact. For the Individual/Social impacts, the highest ranked

item was “Increasing interest in gardening” and the lowest ranked item was “Providing residents with a gathering place.” For Community Impacts, the highest ranked was “Neighborhood Beautification,” and the lowest ranked item was “Reducing Crime.” Table 8 contains all the impacts with the accompanying mean and standard deviation value. Mean values of the “Individual” impacts tended to be greater than the “Community” impacts. Along with this, there was slightly greater variability values on the “Community” impacts when compared to “Individual” impacts. These findings can be found in Table 9 below.

Table 8: Responses to Perceived Impacts

Perceived Impacts	**Mean**	**SD**	**Type of Impact**
Increasing interest in gardening	4.17	.93	Individual
Increasing access to healthy food	4.00	1.10	Individual
Bringing together diverse groups of people	3.74	1.17	Individual
Increasing interaction among neighborhood residents	3.65	1.33	Individual
Increasing interest in the environment	3.63	1.14	Individual
Increasing time spent outside among neighborhood residents	3.62	1.18	Individual
Increasing physical activity among neighborhood residents	3.57	1.22	Individual
Providing residents with a gathering place	3.32	1.35	Individual
Neighborhood beautification	3.74	1.28	Community
Increasing a sense of pride in the neighborhood	3.72	1.20	Community
Strengthening people’s satisfaction with the neighborhood	3.59	1.23	Community
Strengthening people’s attachment to the neighborhood	3.58	1.30	Community
Providing young people with positive things to do	3.51	1.37	Community
Reducing crime	2.36	1.35	Community

N= 58-61

Table 9: Comparison of Means by Category Impact

Category of Impacts	Mean	Range	SD
Individual/ Social	29.68	8-40	1.176
Community-level	20.46	6-30	1.287

Objective #3: Is there a difference in perceived impacts based on leadership structure and funding?

For leadership structure, the four response categories were reduced to two: Individual and Group. Those who indicated "Individual" leadership were coded in the category of Individual leadership (N= 14). Those who indicated "Board of Directors," "Group of Individuals," or "Everyone" were coded in the category of Group leadership (N= 50).

Because of the small sample size for the individual leadership group, a non-parametric *Mann-Whitney U* test was used to identify differences in mean scores of the two types of impacts. Results indicated that there are significant differences ($p < .05$) based on leadership type for the perception of impacts on the "Community" level ($p = .026$). Differences on the perceived impacts of community approached significance ($p = .055$). The results of these tests are seen in Table 10.

Table 10: Results of Mann-Whitney U Test of Perceived Impacts Based on Leadership Structure

Variable	Sig.
Individual/ Social Impacts	.055
Community Impacts	.026

This relationship can be explained more descriptively by comparing the mean values of each of these impacts between the leadership structures. Group Leadership styles tended to perceive more impacts in both categories when compared to individual leadership structures. The

mean scores and standard deviations can be found for each category and leadership style in Table 11 below.

Table 11: Comparison of Means Across Impact and Leadership Categories

	Leadership Structure	N	Mean	Range	SD
Individual Impacts	Single Leader	14	26.4	8-40	7.80
	Group	44	31.0	6-30	6.69
Community Impacts	Single Leader	14	17.1	8-40	6.33
	Group	43	21.6	6-30	5.90

To test the differences on perceived impacts by community garden leaders based on funding, a similar process was followed as above. The responses were re-grouped to reflect all gardens that received any grant funding together in one group, and gardens that only private funding sources in another. Funding sources categorized as "Other" have been omitted from this analysis. The groupings of "Individual" and "Community" perceived impacts were compared between the organizations that received grant funds and all other organizations. The *Mann Whitney U* test was used due to the small sample size of one of the groups. However, no significant differences were found ($p < .05$) based on public funding and "Individual" level impacts. Differences on community impacts approached significance with grant funding ($p = .070$), as visualized by Table 12 below.

Table 12: Results of Mann Whitney U Test of Perceived Impacts Based on Funding

Variable	Sig.
Individual/ Social Impacts	.521
Community Impacts	.070

Table 13: Comparison of Means Across Impact based on Funding Categories

	Funding Source	N	Mean	SD
Individual Impacts	Grant Money	41	30.4	6.42
	No Grant Money	17	28.5	8.85
Community Impacts	Grant Money	40	21.6	5.83
	No Grant Money	17	18.0	6.70

Although the differences between the groups were not significant at a $p < .05$ level, a trend can be noted. The group which received grant funding ranked perceived impacts higher than their counterparts who did not receive public funding. Along with this, there was greater variation in the responses of organizations that didn't receive grant funding when compared to organizations that did. These trends are represented in Table 13.

Chapter V

Summary, Key Findings, and Implications

Data for this study was collected from responses to an online survey. Responses were gathered between December 2012 and January 2013 with a total of 71 responses. The survey was sent to community garden leadership throughout the State of Ohio. Questions on the survey were targeted towards learning about the structure of the community gardens, elements of any youth programming, and information regarding the community leadership itself. This study was designed to examine how community gardens throughout Ohio are structured and the motivations behind garden leadership to run the programs. These factors were explored through survey data collected from community garden leadership across Ohio.

Per the results of the survey, the majority of funding for gardens comes from non-profit organizations, for-profit businesses, and donations from local community members. Understanding the funding relationship between gardens and local entities can explain not only how an organization gets money, but also how stable the source of funds is and what conditionality might accompany the funds (Twiss, 2003). These three funding sources would require a great deal of community outreach and good community standing to acquire and sustain. The next leading categories of funding are direct funding or grants from governmental organizations. Depending on the will of the local or state government, these funds could either be plentiful and dependable or scarce (Drake & Lawson, 2015). Understanding these structural differences can help explain how community gardens can thrive and expand.

This study has also shown that community gardening practitioners in Ohio perceive a fair number of positive outcomes within their community. Though this may seem self-evident, this

uncovers an interesting trend in the motivations behind community gardening. Given the means of these outcomes are generally over 3.00, most gardens leaders see their work giving multiple benefits to the community. This is important because rather than focusing on one outcome or asset within the Community Capitals framework, garden leaders tend to generalize their work to several causes within a community (Emery and Flora, 2016). Overall, this becomes a larger part of the general optimism practitioners of community gardens may have about their work.

In general, outcomes which are most proximally tied to the work done by the gardens, tend to be perceived to have a bigger impact. For instance, perceived benefits that are highest ranked are "Increasing Interest in Gardening" and 'Access to Healthy Food." These two benefits are tied directly to the work that is done within the gardens and for that matter, may be more easily observed impacts on individuals that interact directly with the gardens. Many of the other outcomes may be less directly linked to their work and tend to deal with the community as a whole. Some examples of this are all the impacts tied to the community/ neighborhood like "Neighborhood Beautification" or "Providing Residents with a Gathering Place". Both benefits were ranked towards the middle of the spectrum. Lastly, some perceived "Community" impacts related to more distant societal issues (such as "Reducing Crime") were ranked lowest by the garden leadership. This may be caused by the degree of separation between gardening programs and the incidences of crime. This trend is supported by the results of the factor analyses, which grouped many of the more proximal perceived impacts with each other (the "Individual" category) and the more distal effects into the "Community" level impacts category. Overall, these perceived impacts tended to relate to the degree of separation between the impact and the direct work done within the garden.

Lastly, through this comparison of means, connections may exist between the variables of interest within the study. The results are noteworthy because through understanding the difference in perception of the work based on the leadership team, one can get a glimpse into the motivations behind the group, as well as the perceived efficacy of the work. In terms of theoretical framework, this may reveal some shared meaning stated in Symbolic Interactionism (Carter and Fuller, 2016). If there is a relationship between communal leadership teams and communal perceived impacts, this can speak to the meaning placed behind the work done in the community, showing more self-efficacy of group leadership to deliver upon these goals.

The nearly significant relationship between the receipt of grant funding and the perception of impacts is also telling. Since organizations that received grant funding of some kind reported higher in the community level perceived impacts category, this could reveal a greater degree of efficacy in the community given the added source of funding. With more funding, these organizations may see their work reaching farther beyond the direct effect their work has on individuals. If this relationship does exist, this could speak to the importance of local power actors (such as local governments) have on helping create these programs to add to the community capitals within the community (Emery and Flora, 2016). Through received grant funding, community garden leadership may feel the need to have more of a community level impact or may perceive better ability to deliver results in these categories.

Limitations of the Study

The research mechanism of the survey has various aspects which may limit the findings in this paper in quality and scope. Overall, these data limit the broader application due to lack of responses and scope. The survey was limited to gardens that were readily discoverable within Ohio. These two months were also winter months when leadership may be less actively involved

with the garden and less apt to return the survey. There may be many other gardens within Ohio that were not or that were unable to access or return the survey due to technical issues. Also, the responses are few in number and might not be representative of the community gardening movement as a whole. Specifically, since the gardens are predominantly ones with youth focus, perhaps this could explain perceptions of impacts and the availability of funding. These factors may make the results of this study limited in applicability outside of Ohio.

The analysis of these data may also have some limitations as well. Most of the findings in this study are merely descriptive and are limited as to what they describe about specific garden programs. Along with this, the study examined what the leaders perceive to be outcomes of their work, not actual outcomes. Some data could be more descript to be more applicable. For instance, when looking at funding, greater clarity is need about the source and amount of funding received from different entities. Lastly, with a limited number of responses, the small sample size limits the results of the non-parametric tests. Namely, the factor analysis that was run on the perceived impacts was performed on a relatively small number of responses and may not be the best way to classify responses.

Implications of Key Findings

The purpose of this study was to better understand how structural factors inside and outside of community gardens affects how community garden leadership perceive the work they do. It has been shown in the literature that community gardens have a range of positive effects within a community (Carney et. al, 2011; McCormack et. al, 2010; Robinson O'Brien et. al, 2009). To this effect, we can assume that they serve an important role not only within the food system, but also as an avenue of improvement through boosting various community capitals within the community they are located (Emery and Flora, 2016). However, understanding the

impacts garden leadership perceive from the work of the community garden on individual lives and the community could explain why they become involved with the gardens to begin with. Leading a community garden is contingent (for most people) upon believing in some greater effect and these effects can be affected by a variety of structural differences.

Through the findings of this study, we examined the differences made by funding and leadership structure on the perceived impacts of the community gardens. Although this was an exploratory study, learning more about these effects is important for community gardening practitioners, scholars studying community gardens, and local policy makers alike. This analysis of community gardens can serve as a self-reflection on how we view these organizations, as well as considering the rationale behind those who get involved to lead them. Further analysis with larger samples can provide additional insight into the ways community gardens are beneficial to those who participate in them, communities, and neighborhoods.

Along with these findings, we can also examine gardens in terms of funding. While some of the findings related to funding approached statistical significance, additional research with larger samples and more precise ways of measuring funding can examine whether certain types of funding leads to greater perceived and actual benefits. Gardens with greater resources and support from funders can have greater impacts, including those that stretch beyond the garden's direct work. Along with this, the presence of public or other funding could imply broader support within the community for gardens.

Based on these findings, I would propose the following summarizing points for the academic and political community surrounding community gardens:

- Given the variety of leadership structures and funding sources, perhaps training programs could assist garden leadership become better leaders, but also allow for a larger discussion on gaining funding. This could include guides on fundraising, but also grant writing workshops.
- Since gardens have a wide range of perceived impacts in the community, perhaps garden leadership could more intentionally create and communicate their goals to not only those who get involved with the gardens, but to the community as a whole as well. This could provide some shared meaning and purpose behind their work and craft a more intentional and permanent presence within the community.
- Since different structures and funding sources can impact the benefits perceived, additional research should be done in these areas. Further research could support a greater understating for these influences and how actors like extension and community-based organizations can assist in providing supports for community garden programs.
- The discourse through this study on perceptions should be bolstered by measurement and evaluation systems to make the work of community gardens more substantive and relatable to organizations outside the community. Creating a common language of outcomes and indicators could be useful for the community to go beyond perceiving impacts and to move towards seeing change.

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